Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Wireless Telecommunications Bureau	)	WT Docket No. 17-69
Seeks Comment on the State of Mobile	)	
Wireless Competition	)	

REPLY COMMENTS OF CTIA

I. INTRODUCTION.

CTIA respectfully submits these reply comments to the Federal Communications Commission ("Commission") to further inform the record in response to the Public Notice released by the Wireless Telecommunications Bureau seeking data and comment for the Commission's 20th Mobile Wireless Competition Report.[1] As detailed in CTIA's comments[2] and by others in the record, the mobile wireless marketplace is competitive, and the Commission should make an affirmative finding of such in this proceeding.

II. THE MOBILE WIRELESS MARKET IS EFFECTIVELY COMPETITIVE.

As CTIA indicated in its initial comments, the mobile wireless marketplace is vibrant and competitive, creating myriad choices for consumers and substantial benefits to the American economy. As CTIA explained, consumers of all incomes, abilities, and needs are able to participate in today's mobile-first lifestyle because of the multitude of choices in device offerings and service plans that the wireless industry offers.[3] These benefits will only grow as wireless providers continue to improve their networks, including by deploying the next

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[1] *Wireless Telecommunications Bureau Seeks Comment on the State of Mobile Wireless Competition*, Public Notice, 32 FCC Rcd 1950 (WTB 2017).

[2] Comments of CTIA, WT Docket No. 17-69 (filed May 8, 2017) ("CTIA Comments").

[3] *Id*. at 9-15, 18-25.

generation of wireless, 5G.[4] Moreover, these investments are contributing billions of dollars to the economy in addition to directly benefiting consumers.[5]

Other commenters in the record agreed. As AT&T stated, the mobile wireless marketplace "has for decades exhibited all of the hallmarks of a robustly competitive market: increasing output, decreasing prices, increasing quality, and more choice."[6] Consumers today benefit from numerous service options at a multitude of price points, and they are increasingly able to select from a variety of providers, whether a nationwide or regional provider, Mobile Virtual Network Operator, mobile satellite service provider, or one of the various new entrants that are beginning to offer traditional wireless service and hybrid facilities-based and Wi-Fi service.[7]

This competition is generating both price and non-price benefits for consumers. As Verizon stated, "[w]ith wireless pricing dropping dramatically and data usage climbing rapidly, consumers are capturing even greater value for each dollar spent."[8] Indeed, as CTIA noted, prices for wireless telephone services fell 11.4 percent from March 2016 to March 2017, and

[4] *Id*. at 36-53.

[5] *Id*. at 25-36.

[6] Comments of AT&T Inc., WT Docket No. 17-69, at 15 (filed May 8, 2017) ("AT&T Comments").

[7] *See* Comments of Verizon, WT Docket No. 17-69, at 19-26 (filed May 8, 2017) ("Verizon Comments"); AT&T Comments at 17-18; CTIA Comments at 18-21, 42-46.

[8] Verizon Comments at 9 (quoting American Customer Satisfaction Index, ACSI Telecommunications Report 2016, at 9 (June 1, 2016), http://theacsi.org/news-and-resources/customer-satisfaction-reports/reports-2016/acsitelecommunications-report-2016/acsi-telecommunications-report-2016-download); *see also* AT&T Comments at 5 (noting that "intense competition surrounding unlimited plans in 2016 vividly illustrates" that competition is strong and effective in the mobile wireless marketplace); *id*. at 24 (noting that "[p]roviders also added additional features and benefits to these new lower-priced unlimited plans as they competed to find the best balance of price and features for customers").

declined seven percent between February and March 2017 alone.[9] By April, the year-to-year decline in wireless prices reached 12.9 percent.[10]

Decreasing wireless service prices are doing more for Americans than just putting more dollars back in consumers' pocketbooks; they are directly benefiting our economy as a whole. As recent research from Paul Ashworth, Chief U.S. Economist at Capital Economics found, "half of the decline in core [consumer price index] inflation this year can be traced to a single item: wireless telephone services."[11] This slowdown in core inflation is important because it lowers borrowing costs for other goods, making it more affordable for consumers to take advantage of other buying opportunities and benefiting the economy as a whole.

Not only are wireless prices falling, competition is also fostering innovation and network advancements, with service providers competing to provide more robust 4G LTE service and to ensure that America leads the world in 5G as well.[12] Consumers today are increasingly relying on wireless connections for a wide range of personal and professional uses,[13] and wireless manufacturers and service providers are developing new devices and service plans to better enable consumers to engage in a mobile-first lifestyle.[14] Service providers are also spending

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[9] *See* CTIA Comments at 16; *see also* Comments of Mobile Future, WT Docket No. 17-69, at 6 (filed May 8, 2017) ("Mobile Future Comments"); Comments of The Free State Foundation, WT Docket No. 17-69, at 2 ("Free State Foundation Comments") (noting that the consumer price index for wireless service has continued to decline).

[10] Mike Dano, *Cost of Wireless Service Falls 13%, biggest decline in 16 years: Labor Dept.*, FIERCE WIRELESS (May 22, 2017), http://www.fiercewireless.com/wireless/cost-wireless-service-falls-13-biggest-decline-16-years-labor-dept.

[11] Ben Leubsdorf, *How Cell-Phone Plans With Unlimited Data Limited Inflation*, WALL ST. J. (May 19, 2017). Indeed, "[f]rom April last year, wireless service prices were down 12.9%, the largest decline in 16 years." *Id.*

[12] *See* CTIA Comments at 47-53; *see also* Verizon Comments at 16-18; AT&T Comments at 28; Mobile Future Comments at 4.

[13] *See* CTIA Comments at 10-15; Mobile Future Comments at 2-4.

[14] *See* CTIA Comments at 15-24; Verizon Comments at 11-14; AT&T Comments at 22-24, 29-30.

billions of dollars to improve their networks and to deploy advanced technologies to consumers.[15]

With all of these benefits available, consumer satisfaction is rising. As the ACSI Telecommunications Report 2017 reported last month:

> Customer satisfaction with wireless telephone service climb[ed] 2.8% to 73, as carriers engage[d] in increasingly competitive price wars. Compared with other telecom categories where customers have little choice, the wireless industry is a good example of how competition impacts customer satisfaction. When companies fight for customers, prices are competitive, service improves, and customer satisfaction is higher.[16]

III. THE COMMISSION SHOULD MAKE AN AFFIRMATIVE FINDING OF EFFECTIVE COMPETITION.

Given the record evidence, the Commission should affirmatively conclude that the mobile wireless marketplace is effectively competitive.[17] As commenters noted, the Communications Act charges the Commission with annually reviewing the competitive market conditions in the mobile wireless industry and providing an analysis of "whether or not there is effective competition"—a responsibility that the Commission has in recent years declined to meet.[18] The overwhelming evidence, however, supports no other conclusion than that the mobile wireless marketplace is effectively competitive. From any lens—including wireless adoption and usage, investment in competitive resources like infrastructure and spectrum, development of

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[15] *See* CTIA Comments at 28-30, 36-40; AT&T Comments at 27-29; Verizon Comments at 14-18; Mobile Future Comments at 4-5; Free State Foundation Comments at 7-8.

[16] *See* American Customer Satisfaction Index, *ACSI Telecommunications Report 2017*, at 8 (May 23, 2017), https://www.theacsi.org/news-and-resources/customer-satisfaction-reports/reports-2017/acsi-telecommunications-report-2017/acsi-telecommunications-report-2017-download.

[17] *See* CTIA Comments at 3-6; *see also, e.g.*, AT&T Comments at 22 ("Skyrocketing output, lower prices, investment, innovation, customer switching, and other direct evidence confirm that the wireless marketplace is not only effectively competitive, but robustly competitive.").

[18] *See* CTIA Comments at 3-6; Verizon Comments at 1-2; AT&T Comments at 2; Free State Foundation Comments at 3.

new technologies, or innovations in devices, services, and service plans—consumers today benefit from a robust wireless marketplace. As then-Commissioner Pai aptly recognized in 2015, the Commission should reject the "ostrich-like approach to competition in the wireless market" that the agency has taken in recent years by affirmatively recognizing that the mobile wireless market is effectively competitive.[19] At a minimum, the Commission should reaffirm its prior finding that the core commercial mobile radio service market is highly competitive.[20]

IV. CTIA'S ANNUAL SURVEY RESULTS FURTHER SUPPORT A FINDING OF EFFECTIVE COMPETITION.

In order to aid the Commission's determination, CTIA is pleased to submit into the record the top-line results of its Annual Wireless Industry Survey, which has been conducted since January 1985 and develops industry-wide information drawn from operational member and non-member wireless service providers. In addition to information on the number of reported wireless subscriber units or "connections" for the responding systems and an estimated total wireless connections figure, the CTIA Survey also provides information from service providers regarding direct employment, number of cell sites, total service revenues, capital investment, and other metrics. CTIA is also including in the record its Wireless Snapshot 2017, which provides an overview of the state of the wireless marketplace today.

Among other key findings, the CTIA Annual Survey unsurprisingly found that consumers are using ever more data to meet their growing demands. In fact, Americans used a record 13.72

[19] Press Release, Statement of Commissioner Ajit Pai on the FCC's Ostrich-Like Approach to Competition in the Wireless Market (Dec. 23, 2015), https://apps.fcc.gov/edocs_public/attachmatch/DOC-337035A1.pdf); *see also* Verizon Comments at 2; Free State Foundation Comments at 8 ("[I]t is truly misleading to refuse to forthrightly acknowledge [the] clearly competitive state of the market."); Mobile Future Comments at 9 ("The FCC should once again clearly and unequivocally declare the American mobile wireless marketplace to be competitive.").

[20] CTIA Comments at 5-6.

trillion megabytes (MBs) of mobile data in 2016, an increase of more than four trillion MBs over 2015 and 35 times the volume of traffic in 2010. To put that in perspective, the amount of data traffic sent over wireless networks in 2016 is the equivalent of 1.58 million years of streaming HD videos. Moreover, according to the CTIA Annual Survey, the total number of active devices continues to outpace the number of Americans, with adoption now equal to more than 120 percent of the U.S. population. There are also a record number of cell sites in operation, representing a 57 percent growth over the last decade. In short, the CTIA Annual Survey results and the Wireless Snapshot demonstrate that use of data-intensive mobile devices continues to rise and the wireless industry is competing every day to meet consumers' growing wireless needs.

V. THE COMMISSION'S REGULATORY APPROACH SHOULD FOSTER ADDITIONAL COMPETITION.

To promote further growth of and competition in the mobile wireless marketplace, the Commission should ensure that its policies reflect the vibrancy of the mobile wireless ecosystem. To that end, CTIA and other commenters urged the Commission to ensure that sufficient spectrum resources are made available in the low-, mid-, and high-band frequencies for licensed, exclusive use.[21] The Commission should also move forward with its proposals to modernize its wireless siting policies to ensure that the infrastructure necessary to support 4G LTE and 5G networks can be rapidly and efficiently deployed.[22] Finally, the Commission should renew its focus on assessing the costs and benefits of regulatory mandates, including by reevaluating the

[21] *See* CTIA Comments at 60-63; Verizon Comments at 30; Free State Foundation Comments at 14; Comments of Competitive Carriers Association, WT Docket No. 17-69, at 26-31 ("CCA Comments").

[22] *See* CTIA Comments at 63-65; Free State Foundation Comments at 14; CCA Comments at 31-37; *see also* Verizon Comments at 29 (noting the Commission's "forward-looking policy initiatives" to modernize its infrastructure policies).

harmful impact of applying Title II rules to broadband Internet access services and returning to a light-touch regulatory framework that will promote investment, jobs, and innovation.[23]

VI. CONCLUSION.

Taken together, the record evidence in this proceeding demonstrates amply that the mobile wireless market is effectively competitive. CTIA urges the Commission to affirmatively make such a finding in its 20th Mobile Wireless Competition Report.

Respectfully submitted,

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[23] *See* CTIA Comments at 66-67; Free State Foundation Comments at 12-13.

Background on CTIA's Wireless Industry Survey

CTIA's wireless industry survey develops industry-wide information drawn from operational member and non-member wireless service providers. It has been conducted since January 1985, originally as a cellular-only survey instrument, and now including the community of CMRS licensees (e.g., PCS, ESMR, AWS, BRS and 700 MHz license holders). No break-out of results specific to spectrum bands or licenses is performed. From January 1985 through December 2012, it was conducted as a semi-annual survey, and it is now conducted on an annual basis.

The information determined based on the survey includes: direct employment, number of cell sites, total service revenues, the average revenue per unit (ARPU), and various measures of usage (e.g., minutes and megabytes). The ARPU figure is not equal to the average monthly bill, which may reflect provision of service to multiple devices on a single account.

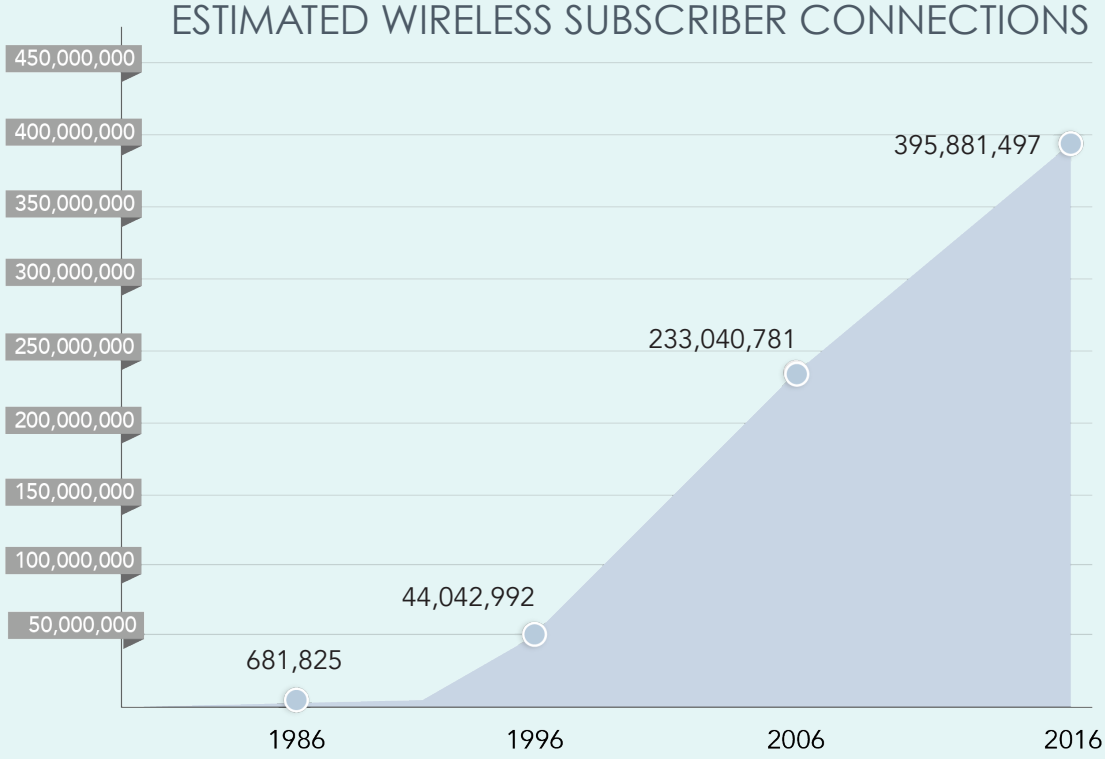
CTIA's survey develops information on the number of reported wireless service subscribers or "connections" for the responding systems, and an estimated total connections figure (taking into account non-responding systems). Because CTIA's survey is a voluntary survey, it cannot compel responses from wireless carriers. However, the survey has an excellent response rate. For the December 31, 2016, installment of the survey, CTIA aggregated data from companies serving 97.9 percent of all estimated wireless subscriber connections (excluding some machine-to-machine and other units not treated as "subscriber connections" for reporting purposes by some carriers).

Because not all systems do respond, CTIA develops an estimate of total wireless connections. The estimate is developed by determining the identity and character of non-respondents and their markets (e.g., RSA/MSA or equivalent-market designation, age of system, market population), and using surrogate penetration and growth rates applicable to similar, known systems to derive probable subscribership. These numbers are then summed with the reported subscriber connection numbers to reach the total estimated figures. No carrier-specific or market-specific information is maintained as a result of the survey. All such information is aggregated by an independent accounting firm to a nationwide level. The underlying source material for the survey is then destroyed per confidentiality agreements.

The following tables and charts reflect selected top-of-the-line data. Complete results of CTIA's survey will be available for purchase in the comprehensive report, CTIA's Wireless Industry Indices: 1985 – 2016, including data on revenues, subscriber usage, investment, and other operational indicators and ratios. The report is available for a member price of $850 and a non-member price of $1,075. Subsequent copies are available to members at $475 each and to non-members at $535 each. Annual subscriptions are available at a member price of $1,445 and non-member price of $1,825. The report may be ordered by contacting research@ctia.org or by ordering directly from CTIA's online Store at http://store.ctia.org/. Order forms are also available on CTIA's web site, at http://files.ctia.org/pdf/Indices_Order_Form1.pdf.

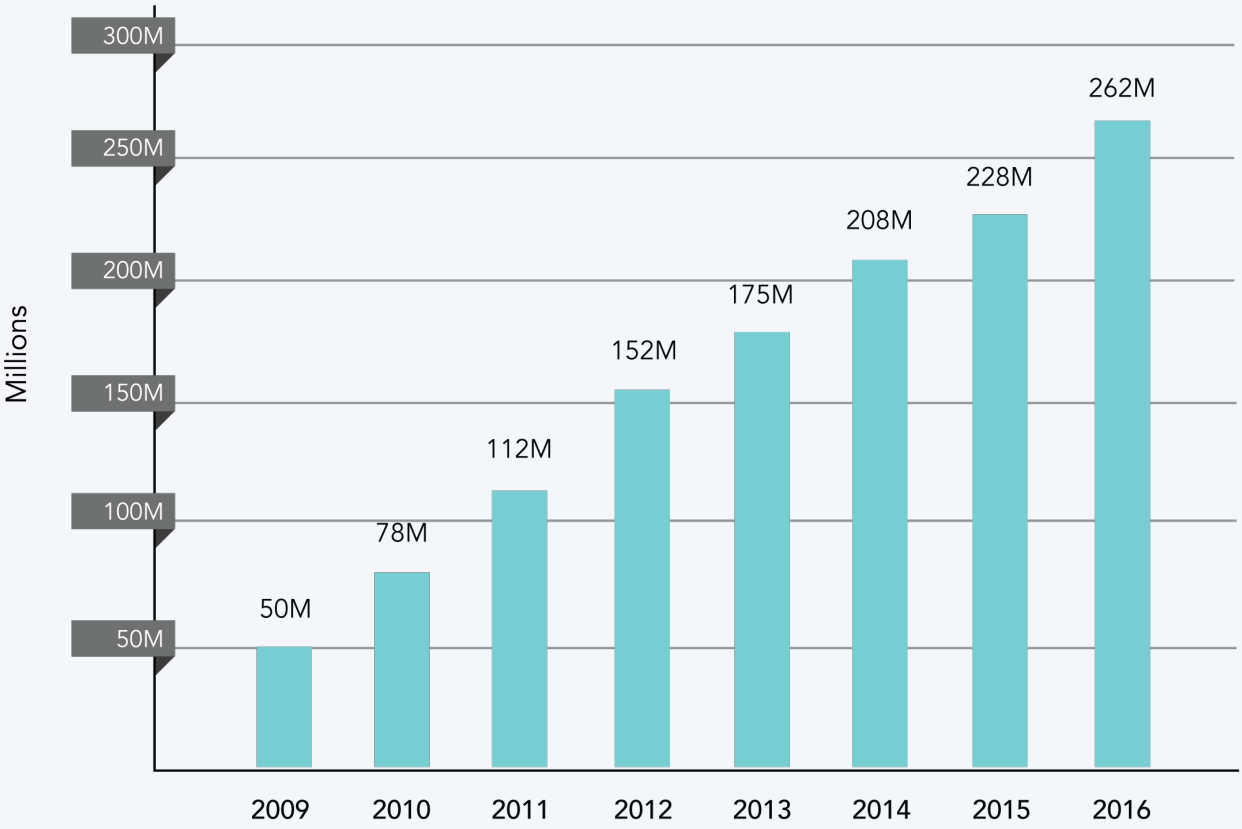
ctia Everything™ Wireless

ESTIMATED WIRELESS SUBSCRIBER CONNECTIONS



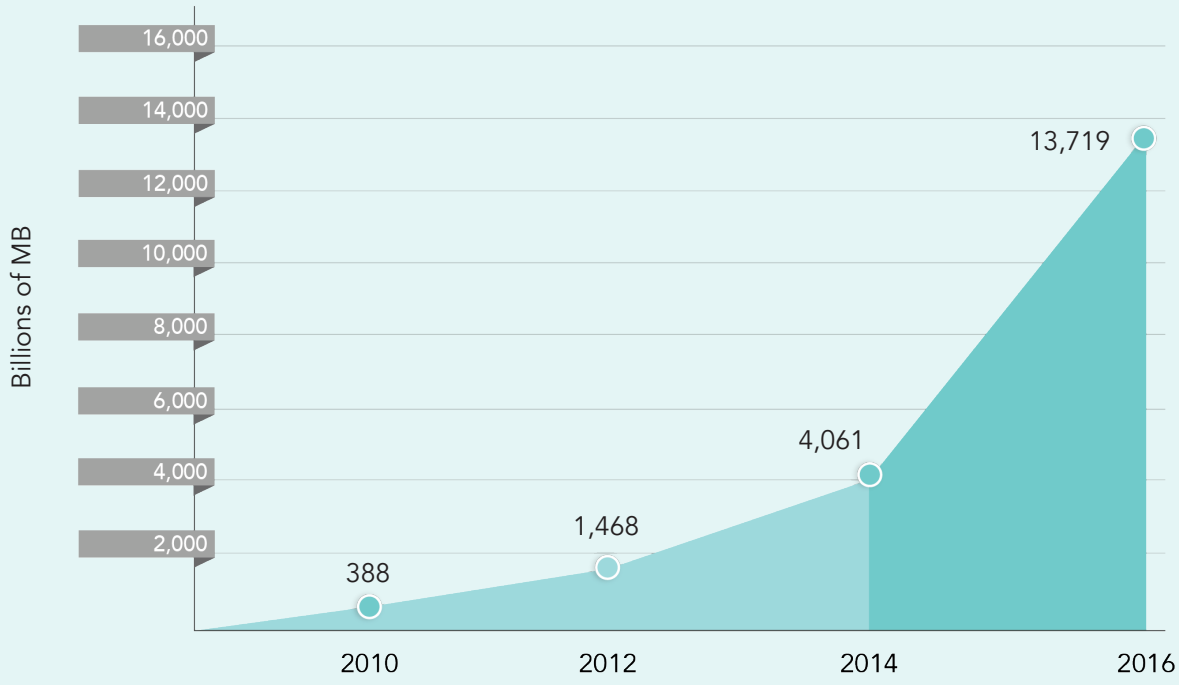
Estimated Connections up 4.7% from 2015, Almost 18 Million Net Adds Year-Over-Year

SMARTPHONES IN ACTIVE USE



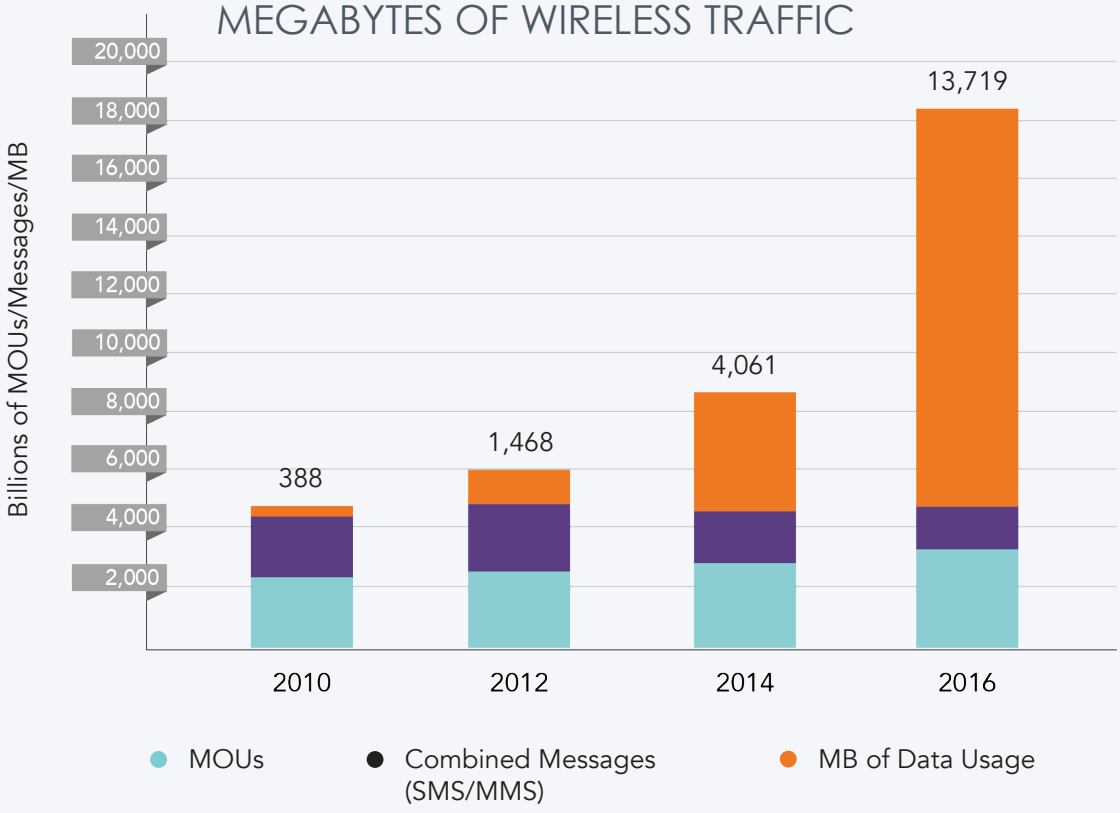
Reported Smartphones Rose 15% Year-to-Year

REPORTED WIRELESS DATA TRAFFIC



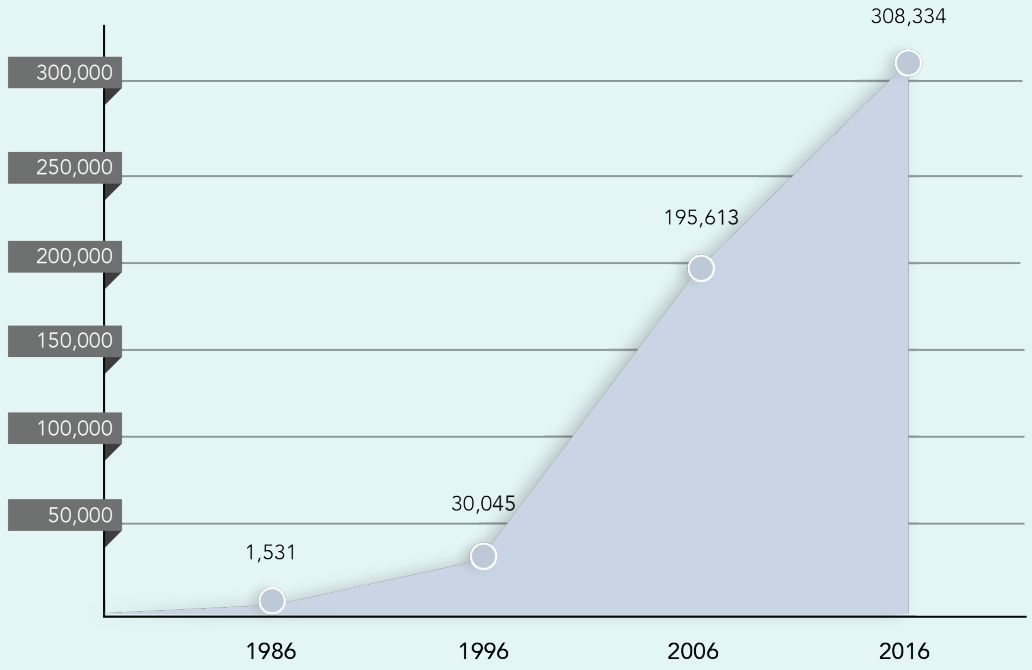
Reported Annual Wireless Data Traffic Grew 35 Times Since 2010, Up 42% from 2015

ANNUAL MINUTES, MESSAGES AND MEGABYTES OF WIRELESS TRAFFIC



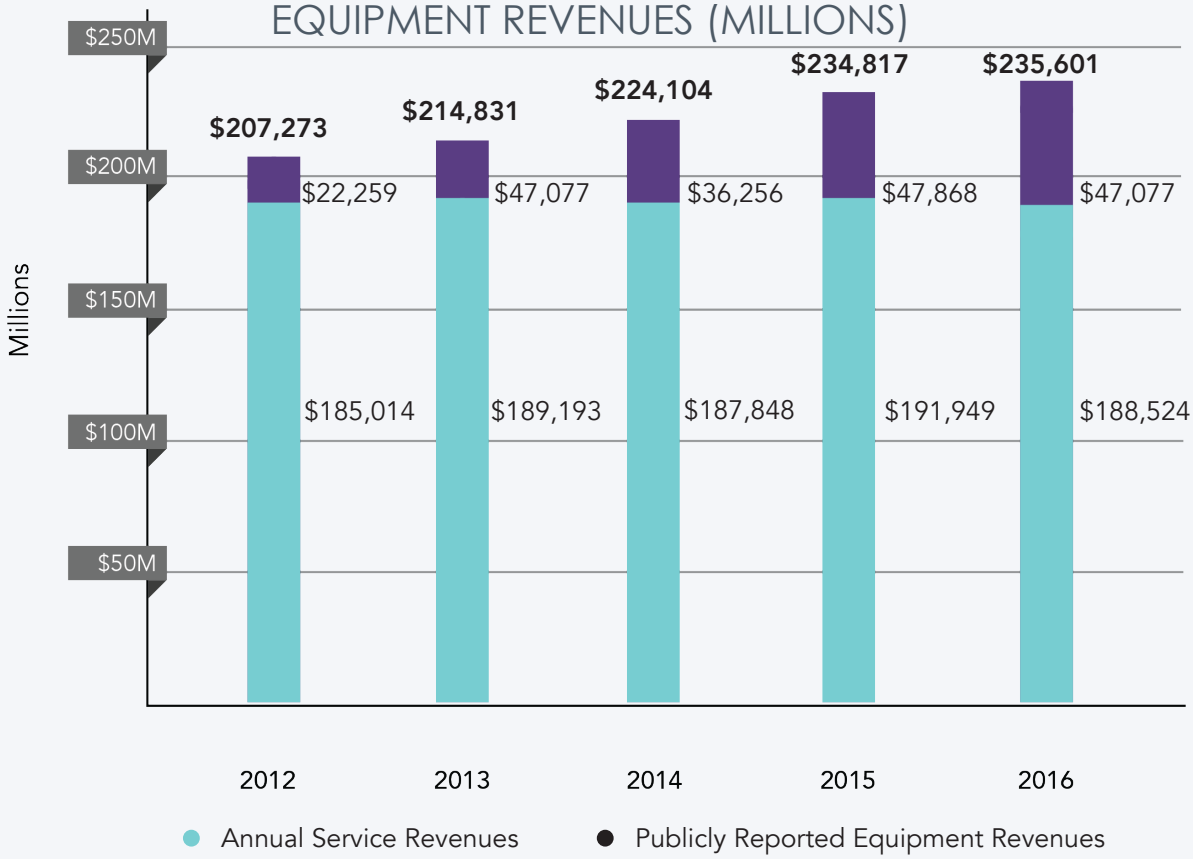
The Mix of Minutes, Messages and MBs Changes – Data Dominates

CELL SITES IN SERVICE



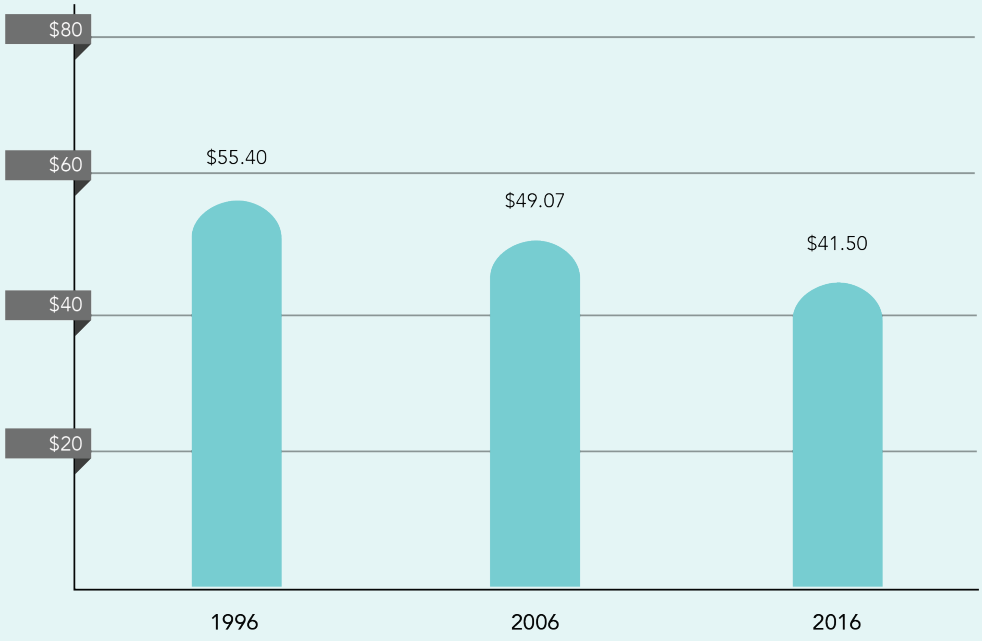
A Record 308,334 Cells Sites Were in Operation in 2016, Representing a 57% Growth Over the Last Decade

COMBINED WIRELESS SERVICE AND EQUIPMENT REVENUES (MILLIONS)



Combined Service and Equipment Revenues Rose 0.3% Year-to-Year

MONTHLY SERVICE AVERAGE REVENUE PER UNIT (ARPU)



Monthly ARPU Fell 7% Year-to-Year

CTIA ANNUALIZED WIRELESS INDUSTRY SURVEY RESULTS - 2000 TO 2016

Date	Estimated Total Subscriber Connections	Annual Services Revenues ($000s)	Cumulative CapEx ($000)	Cell Sites	Direct Carrier Employees	Monthly Average Revenue Per Unit
2000	109,478,031	$52,466,020	$89,624,387	104,288	184,449	$48.55
2001	128,374,512	$65,316,235	$105,030,101	127,540	203,580	$49.79
2002	140,766,842	$76,508,187	$126,922,347	139,338	192,410	$51.00
2003	158,721,981	$87,624,093	$145,866,914	162,986	205,629	$51.55
2004	182,140,362	$102,121,210	$173,793,507	175,725	226,016	$52.54
2005	207,896,198	$113,538,221	$199,025,327	183,689	233,067	$50.65
2006	233,040,781	$125,456,825	$223,449,194	195,613	253,793	$49.07
2007	255,395,599	$138,869,304	$244,591,206	213,299	266,782	$49.26
2008	270,333,881	$148,084,170	$264,760,517	242,130	268,528	$48.87
2009	285,646,191	$152,551,854	$285,121,591	247,081	249,247	$47.97
2010	296,285,629	$159,929,648	$310,014,852	253,086	250,393	$47.53
2011	315,963,848	$169,767,314	$335,331,968	283,385	238,071	$46.11
2012	326,475,248	$185,013,936	$365,426,327	301,779	230,101	$48.99
2013	335,652,171	$189,192,812	$398,567,671	304,360	230,409	$48.79
2014	355,445,472	$187,848,447	$430,642,374	298,055	232,169	$46.64
2015	377,921,241	$191,949,025	$462,605,007	307,626	235,818	$44.65
2016	395,881,497	$188,524,256	$488,996,535	308,334	216,537	$41.50

Cumulative Capital Investment Neared $489 Billion at Year-end 2016

Wireless Snapshot 2017

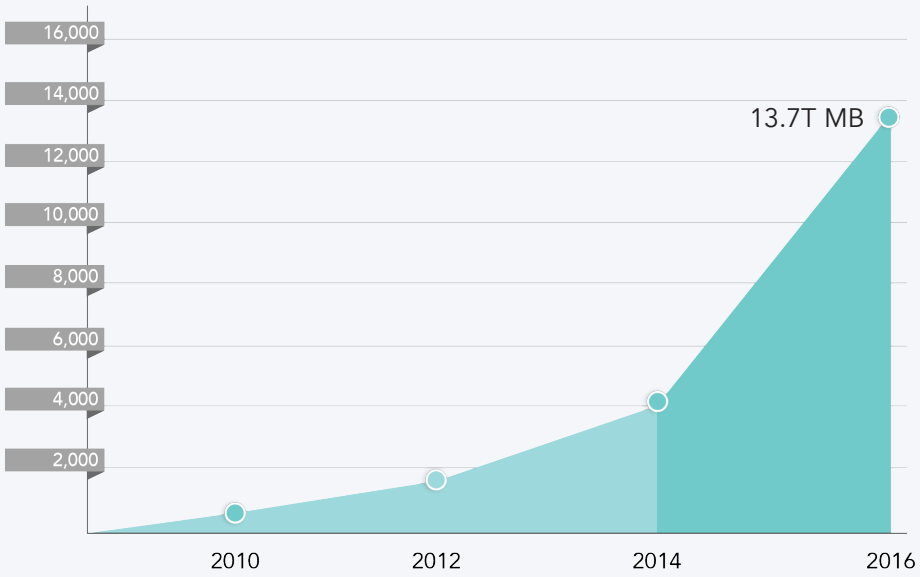
MORE DEVICES, MORE SMARTPHONES, AND MORE APPLICATIONS CONTRIBUTE TO OUR MOBILE-FIRST LIVES.

Since 1985, CTIA has tracked the evolution of the U.S. wireless industry with our Wireless Industry Indices Report. By every metric, wireless is now central to our lives. Last year was no exception, driven by Americans' ever-rising demand for mobile services. Wireless subscribers sent an additional four trillion megabytes over our networks over 2015 levels—and since 2010, data traffic has increased by a factor of 35.

Wireless Data Continues Explosive Growth.

In 2016, wireless data traffic reached yet another record high. In all, traffic totaled 13.72 trillion MBs—the equivalent of 1.58 million years of streaming HD video[1]—an increase of 4.07 trillion megabytes over 2015. Over the past two years, data use has increased 238 percent.

REPORTED WIRELESS DATA TRAFFIC



2016 mobile data use is

35 times

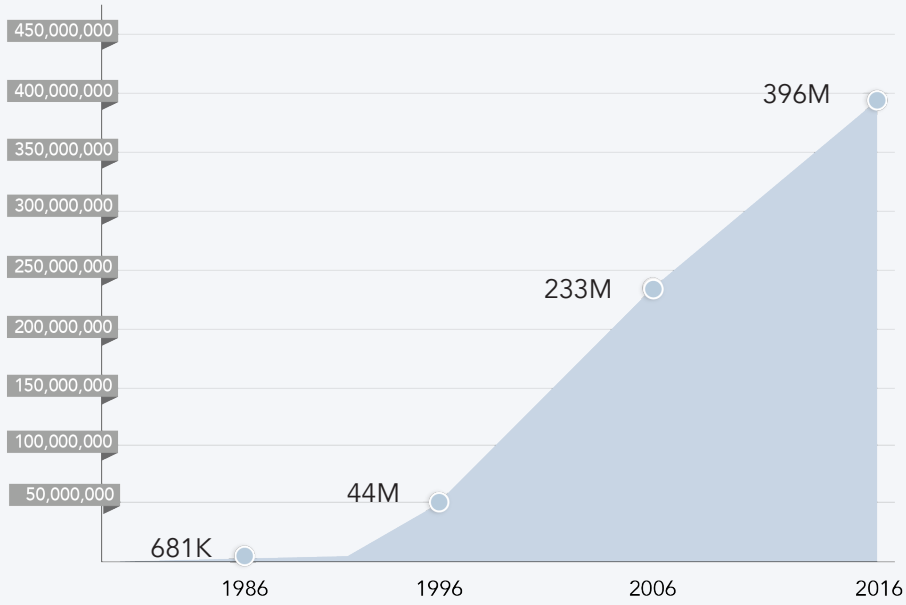
the volume of traffic in 2010.

Driving the Remarkable Increase in Wireless Data Traffic.

Almost every person in America has a mobile phone. The vast majority have a smartphone. Nearly the entire country has been blanketed with high-speed mobile broadband coverage. Speeds are increasing. And consumers view wireless as indispensable to their lives.

MOBILE DEVICE OWNERSHIP CONTINUES TO RISE. Mobile device use continues to increase across all demographics. Roughly 396 million mobile devices are in use today,[2] up 4.7 percent in 2016, continuing a remarkable decades-long growth curve. There are now more wireless devices than Americans, with about 1.2 devices for every person in the country. That makes the wireless platform nearly ubiquitous: 95 percent of U.S. adults own a cellphone.[3] Compare that to the 78 percent of Americans who own a computer[4] and the fact there are enough cars and motorcycles on the road for only 77 percent of Americans.[5]

ESTIMATED SUBSCRIBER CONNECTIONS



Mobile device penetration is up

4.7 percent

in 2016, continuing a remarkable decades long growth curve.

SMARTPHONES ARE NOW PERVASIVE. There are 261.9 million smartphones in use today, representing nearly 80 percent of the U.S. population. With smartphones generating 102 times more data than a current basic mobile device,[6] the continued rise in smartphone ownership is a driving force behind the significant increase in data traffic across wireless networks. On average last year, a smartphone generated 3.87 GB of data every month. This represents an over 1,400 percent increase since 2010, due to the rise of faster networks, more sophisticated phones, and new applications and services.

Millennials lead smartphone adoption, with 92 percent of 18-29 year olds having a smartphone, followed by 88 percent of 30-49 year olds, and 74 percent of 50-64 year olds.[7] With respect to race, smartphone ownership cuts across the board, with approximately 72 percent of African-Americans, 75 percent of Hispanics, and 77 percent of whites in the U.S. having smartphones.[8]

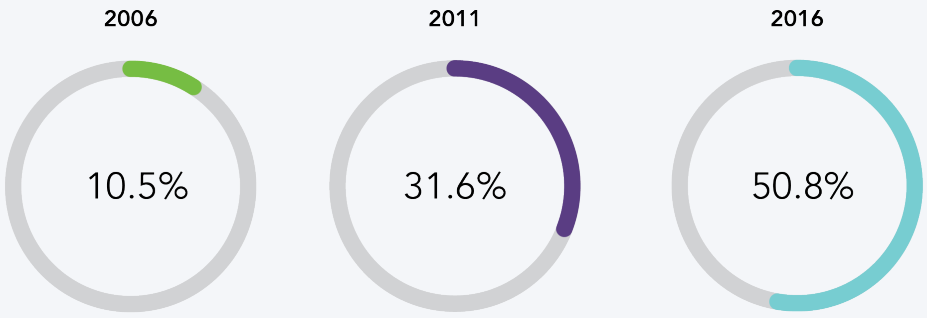
Across income levels, a significant majority of Americans now have smartphones, with 64 percent of people making less than $30,000 a year and 93 percent of people earning more than $75,000 a year owning smartphones.[9] And since 2011, the number of individuals making under $30,000 per year who own a smartphone has grown by 42 percent.[10]

14.7% increase

in smartphones year-over-year.

WIRELESS INCREASINGLY THE ON-RAMP TO THE INTERNET. For some, mobile devices are their sole means of accessing the Internet. Twelve percent of Americans rely on their smartphone as their primary access to the Internet at home—and these individuals are more likely to be younger, non-white, and lower-income.[11] More people are cutting the cord and going wireless-only when it comes to phone service, making their mobile device their only telephone connection.

GROWTH IN WIRELESS-ONLY HOUSEHOLDS[12]

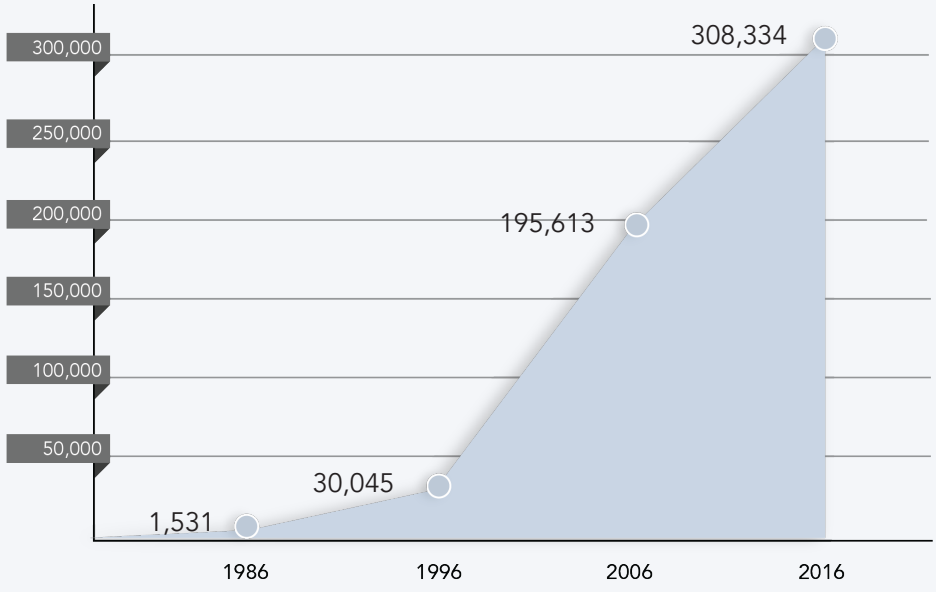


Today, just over half—50.8 percent—of American households only have a mobile voice connection.[13] For Millennials, the number increases to over two-thirds who live in mobile-only households.[14] These data points showcase a dynamic and growing wireless industry.

MORE CELL SITES EXPAND COVERAGE AND SPEEDS. At the end of 2016, a record 308,334 cell sites were in operation, representing growth of over 57 percent in the last ten years. This number is poised to increase dramatically as the wireless industry densifies today's networks and prepares for 5G, the next-generation of wireless, with hundreds of thousands of small cells in the next three to four years.

Thanks in part to the buildout of wireless industry infrastructure, more than 98 percent of the U.S. population is covered by three or more providers of mobile wireless service and more than 95 percent of the population is covered by three or more LTE-based service providers.[15] Consumers win with this level of competition.

CELL SITES IN SERVICE



57% growth

in cell sites over the last 10 years.

Over the life of the wireless industry, wireless carriers have made nearly **$489 billion in capital investments.**

MOBILE SPEEDS CONTINUE TO INCREASE AND DRIVE DATA USE. Today's 4G LTE mobile data speeds increased nearly 40 times since 3G speeds in 2007,[16] and download speeds for all mobile phones have grown by almost 40 percent since 2015.[17] Today, Americans benefit from average 4G LTE speeds of nearly 17 Mbps.[18] Faster speeds allow for quicker downloads, better connections, and more advanced apps, which in turn fuel increased consumption and innovation.

SATISFIED WITH THEIR WIRELESS SERVICE, CONSUMERS SEE WIRELESS AS INDISPENSABLE. With all this mobile use, the vast majority of Americans—four out every five—consider wireless service indispensable.[19] In fact, the average U.S. consumer checks their phone nearly 50 times throughout the day.[20]

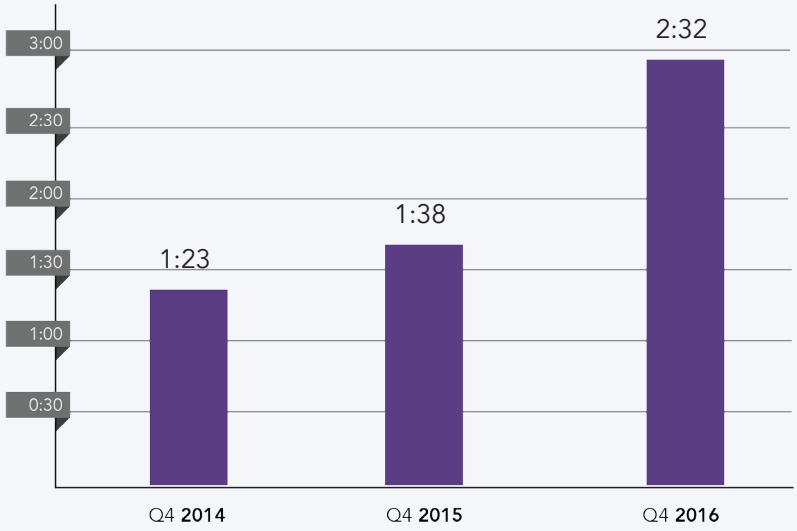
TIME WITH MOBILE DEVICES ALSO INCREASING DRAMATICALLY. Today, Americans spend 2 hours and 32 minutes a day on average, using apps or accessing the web on their smartphones—a figure that has doubled in the past year alone.[21] In addition, 71% of the time people spend online is from a mobile device,[22] mobile minutes exceeded 1 billion for the first month ever in March 2016,[23] and consumers spent twice as many minutes on mobile as desktop for the first month ever in April 2016.[24]

CONTINUED IMPORTANCE OF TEXT AND VOICE. In 2016, wireless consumers spent 2.751 trillion minutes of use (MOU) talking on their mobile devices through traditional voice services.

In addition to voice capabilities, text messaging remains a critically important wireless feature. With SMS's very high engagement rate—90 percent of consumers say they read a message within minutes of receipt[25]—and its high daily use rate—71 percent of consumers use SMS at least once a day[26]—it is no surprise that consumers sent a remarkable 1.939 trillion messages (combined SMS and MMS) in 2016.

These numbers matter because they illustrate the centrality of wireless connectivity to our lives.

AVERAGE TIME SPENT PER ADULT 18+ PER DAY ACCESSING APPS/ WEB ON A SMARTPHONE/ TABLET



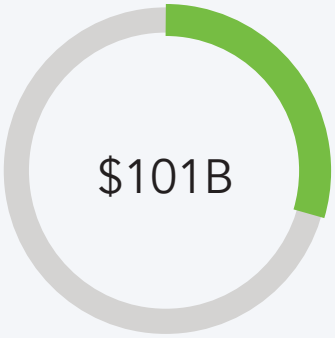
Wireless Impact: Investing in America and Growing our Economy.

WIRELESS INVESTMENT MEANS GLOBAL LEADERSHIP. America's wireless leadership is possible only because of the significant capital investments that wireless carriers make in their networks. Wireless capital expenditures totaled $26.4 billion in 2016, and over $200 billion in the past seven years alone.

SPECTRUM IS A KEY WIRELESS INVESTMENT. In addition to capital expenditures, the wireless industry has also spent billions of dollars on spectrum licenses. Since 1994, FCC spectrum auctions – including the recent 600MHz auction – raised over $100 billion in revenue for the government.[26]

INVESTING IN AMERICA

Reported Wireless Capex Since 1994



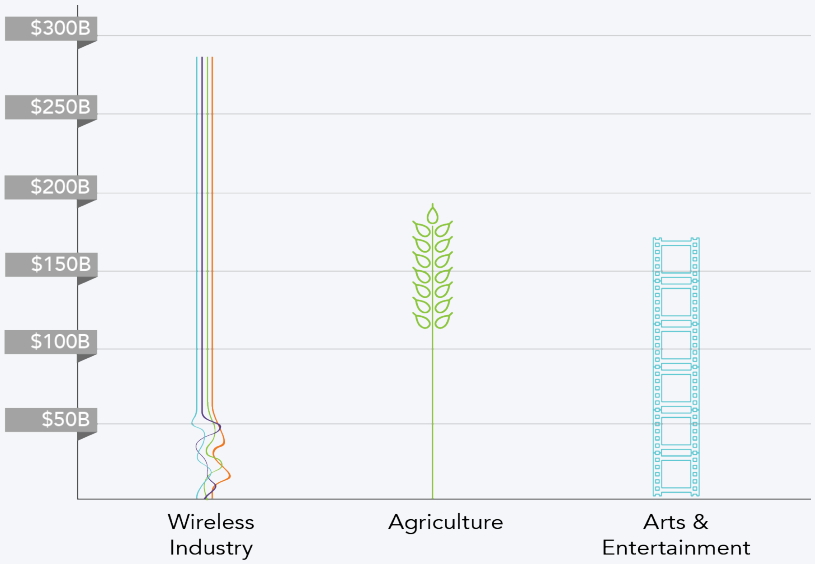
Spectrum Auction Revenue for the Federal Government Since 1994

WIRELESS CREATES JOBS. In 2016, wireless carriers directly employed 216,537 people across the country. Wireless employees also have higher wages—46 percent higher, in fact—than average.[27]

In addition, wireless directly supports more than 4.6 million jobs across ecosystem sectors—device and accessories manufacturers, wireless operators, retailers, network suppliers, app and content stores, mobile advertising networks, advertising, and others.[28]

MOBILE INDUSTRY COMPARED TO OTHER INDUSTRIES

In 2014, the Wireless Industry had a GDP of $282B, almost $100B more than Agriculture, and Arts and Entertainment in the same year.



WIRELESS DRIVES ECONOMIC GROWTH. Licensed wireless service generates more than $400 billion annually[29] in direct and indirect economic activity. This spend in the wireless ecosystem is a result of the use of licensed spectrum and doesn't even account for the economic benefits produced by other industry sectors that rely on the mobile broadband platform.

THE NEXT GENERATION OF WIRELESS: 5G, SMART CITIES, AND THE INTERNET OF THINGS. 5G, the next-generation of wireless, will unlock new cycles of innovation and investment across the mobile ecosystem. Analysts predict 5G networks will be up to 100 times faster than 4G networks, connect 100 times the number of devices, and respond 5 times as quickly. Driving this wireless revolution is a projected $275 billion dollars in investment that will create up to 3 million new 5G jobs and add approximately $500 billion to the U.S. economy.[30]

Wireless-powered smart city solutions could produce $160 billion in benefits and savings from lower energy use, reduced traffic congestion, and decreased fuel costs.[31] Connected devices could create $305 billion in annual savings for the healthcare industry,[32] and self-driving cars could save 21,700 lives and $447 billion per year.[33] The number of IoT devices worldwide will conservatively surpass 20 billion by the year 2020,[34] and this increase in connectivity stands to add roughly $2.7 trillion to U.S. GDP by 2030.[35]

The proliferation of mobile use has transformed our lives, and we're only scratching the surface. Mobile and connected life innovation is exploding as new consumers and commercial applications are brought to market. The future is here and we look forward to seeing where it takes America next.

ENDNOTES |

1. Based on estimates from the U.S. Cellular Monthly Data Usage Estimate tool, available at https://www.uscellular.com/data/data-estimator.html.

2. This number is derived from the number of active devices, including smartphones, feature phones, tablets, etc. on carrier networks. Since users may have more than one wireless device, it is not equal to the number of individual subscribers.

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7. Pew Research Center, "Mobile Fact Sheet" (Jan. 12, 2017), available at http://www.pewinternet.org/fact-sheet/mobile/

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